Claims

- 1. The use of copolymers comprising alkylene oxide units and comprising, in randomly or blockwise copolymerized form,
 - (a) 50 to 93 mol% of acrylic acid and/or a water-soluble salt of acrylic acid,
 - (b) 5 to 30 mol% of methacrylic acid and/or a water-soluble salt of methacrylic acid

and

(c) 2 to 20 mol% of at least one nonionic monomer of the formula I

$$R_{1}^{1}$$
 $H_{2}C=C-COO-R^{2}-R^{3}-O-\frac{1}{3}$
 R^{4}

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in which the variables have the following meanings:

R¹ is hydrogen or methyl;

R² is a chemical bond or unbranched or branched C₁-C₆-alkylene;

R³ is identical or different unbranched or branched C₂-C₄-alkylene radicals;

R⁴ is unbranched or branched C₁-C₆-alkyl;

n is 3 to 50,

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as deposit-inhibiting additives in the rinsing cycle of a dishwasher.

- 2. The use according to claim 1, wherein the copolymers comprise 65 to 85 mol% of component (a), 10 to 25 mol% of component (b) and 5 to 15 mol% of component (c) in copolymerized form.
 - 3. The use according to claim 1 or 2, wherein the copolymers comprise 65 to 75 mol% of component (a), 15 to 25 mol% of component (b) and 5 to 10 mol% of component (c) in copolymerized form.

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4. The use according to claims 1 to 3, wherein the copolymers comprise, as component (c), a nonionic monomer of the formula I, in which R¹ is methyl, R² is a chemical bond, R³ is C₂-C₃-alkylene, R⁴ is C₁-C₂-alkyl and n is 5 to 40, in copolymerized form.

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- 5. The use according to claims 1 to 4, wherein the copolymers comprise, as component (c), a nonionic monomer of the formula I, in which R¹ is methyl, R² is a chemical bond, R³ is ethylene, R⁴ is methyl and n is 10 to 30, in copolymerized form.
- 6. The use according to claims 1 to 5, wherein the copolymers comprise -SO₃ Na and/or -SO₄ Na as end groups.
- 10 7. The use according to claims 1 to 6, wherein the copolymers are used in rinse aids for dishwashers.
 - 8. The use according to claims 1 to 6, wherein the copolymers are used in a form formulated into the rinse aid core of a detergent tablet for dishwashers.
 - 9. A rinse aid for dishwashers which comprises copolymers according to claims 1 to 6 as deposit-inhibiting additive.
- 10. A detergent tablet for dishwashers which comprises copolymers according to claims 1 to 6 as deposit-inhibiting additive formulated into the rinse aid core.

Use of copolymers, containing alkylene oxide units, as deposit inhibitor additives in the rinsing process of a dishwasher

Abstract

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Use of copolymers comprising alkylene oxide units and comprising, in randomly or blockwise copolymerized form,

(a) 50 to 93 mol% of acrylic acid and/or a water-soluble salt of acrylic acid,

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- (b) 5 to 30 mol% of methacrylic acid and/or a water-soluble salt of methacrylic acid and
- 15 (c) 2 to 20 mol% of at least one nonionic monomer of the formula I

$$R_{2}^{1}$$
 $H_{2}C = C - COO - R^{2} - R^{3} - O - \frac{1}{n}R^{4}$

in which the variables have the following meanings:

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- R¹ is hydrogen or methyl;
- R² is a chemical bond or unbranched or branched C₁-C₆-alkylene;
- R³ is identical or different unbranched or branched C₂-C₄-alkylene radicals;
- R^4 is unbranched or branched C_1 - C_6 -alkyl;

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n is 3 to 50,

as deposit-inhibiting additives in the rinsing cycle of a dishwasher.